

# ETERNITY

## Technical Specifications Brochure



### SYSTEM RESOURCES

System Resources	Description	Maximum Capacity				
		GE3S	GE6S	GE12S	ME10S	ME16S
Universal Slots	The Maximum Physical Card Slots	3	6	12	10	16
Total User Ports	The Maximum Physical Ports Available	60	120	240	324	516

### OPTIONAL INTERFACES

System Resources	Description	Maximum Ports				
		GE3S	GE6S	GE12S	ME10S	ME16S
SLT Ports	To Connect Single Line Analog Telephones	60	120	240	320	512
DKP/DSS Ports	To Connect Proprietary Digital Key Phones or DSS Consoles	48	80	80	80/128*	80/128*
TWT Ports	To Connect Two Wire Trunk Lines	48	96	128	128	128
BRI Ports	To Connect to ISDN BRI Network or ISDN Compatible Devices	12	24	32	32	32
T1/E1/PRI Ports	To Connect to T1 or E1 or PRI Network or Compatible Devices	3	6	8	8	8
GSM Ports	To Connect to GSM Network	12	24	32	16	16
VoIP Channels	To Make VoIP (SIP) Calls Using Internet or Intranet	24	48	96	80	128
E&M Ports	To Connect E&M Network	12	24	48	80	128
Voice Mail System	To Configure as Voice Mail System	1	1	1	1	1
Magneto Trunk Ports	To Connect Magneto Phones	NA	NA	NA	80	128
Redundancy	To Provide Redundancy in Case of Primary Hardware Failure	NA	NA	NA	Available for Master Card, Switch Card and PS48VDC	NA

\* Maximum 80 with PSUNI and 200W PS48VDC, Maximum 128 with 500W PS48VDC

### BUILT-IN INTERFACES

System Resources	Description	GE3S	GE6S	GE12S	ME10S	ME16S
DKP/DSS Port	To Connect Proprietary Digital Key Phone or DSS Consoles	–	–	–	4	4
RS232C Port	To Connect to a Computer for SMDR Output	1	1	1	2	2
Parallel Printer Port	To Connect to a Parallel Printer	–	–	–	1	1
Analog Input Port	To Connect External Music Device	1	1	1	1	1
Analog Output Port	To Connect to a Public Address System	1	1	1	1	1
Digital Input Port	To Connect to Sensor or Panic Switch	1	1	1	1	1
Digital Output Port	To Connect to External Devices like Door Lock or Relay Port	1	1	1	1	1
Ethernet Port	To Access Web Based Programming Tool "Jeeves"	1	1	1	1	1
USB Port	Reserved for Future Application	1	1	1	1	1
Voice Modules (16 Seconds Each)	To Configure as Auto Attendant and/or for Recording Voice Messages to be used in other Voice Message Applications	8	8	8	16	16
Conference	Maximum No. of Simultaneous 3-Party Conference	5	5	5	7	7

## ETERNITY TECHNICAL SPECIFICATIONS

### TECHNOLOGY

Type of Switching	: PCM/TDM Digital Switching (100% Non-blocking)
Processor	: 32-bit RISC
Architecture	: Distributed Processing
Slots	: Universal

### SLT (ANALOG STATION)

Signaling	: Loop start
Dialing	: DTMF and Pulse (10/20PPS)
Off Hook AC impedance	: 600/900/Complex
Off Hook Current	: 39mA max
Loop Limit	: 1800Ω Max (Excluding Telephone)
On-Hook Voltage (Tip/Ring)	: -48V nominal
DTMF detection	: ITU-T Q.24
Return Loss	: >18dB
Longitudinal Balance	: >50dB
Transmission level adjust	: Tx Gain: -3dB to +6dB, Rx Gain: -3dB to 6dB
Ringing	: Trapezoidal 60VRMS/25Hz and Sinusoidal 52VRMS/25Hz
REN	: 3
CLI Presentation	: DTMF, FSK ITU-T V.23 and FSK Bellcore 202
Protection	: Over Voltage Secondary Protection
Physical Connector	: RJ45

### DKP (DIGITAL STATION)

Signaling	: Proprietary Digital (2B+D)
Interface	: Single pair for Speech, Signaling and Power
Loop Limit	: 100Ω
Speech level	: Adjustable Tx and Rx Gain for Handset and Hands-free
Protection	: Over Voltage Secondary Protection
Physical Connector	: RJ45

### TWT (2-WIRE TRUNK)

Signaling	: Loop Start
Loop Limit	: 12000
Off Hook AC Impedance	: 600/900/Complex
Pulse Dialing	: 10/20 PPS
DTMF Dialing and Reception	: ITU-T Q.23 & Q.24
Return Loss	: >18dB
Longitudinal Balance	: >50dB
Transmission level adjust	: Tx Gain: -15dB to +10dB, Rx Gain: -15dB to +10dB
CLI Reception	: DTMF, FSK ITU-T V.23 and FSK Bellcore 202
Call Maturity	: Delay and Polarity Reversal
Protection	: Over Voltage and Over Current Secondary Protection
Physical Connector	: RJ45

### ISDN BRI

Channels	: 2B+D
Personality	: Network (NT) and Terminal (TE)
Switch Variant	: AT&T 4ESS, DMS-100, ETSI NET3, ITU-T Q.921, ITU-T Q.931, NTT INS64, US NI1 (National ISDN 1), France Vnx
Protection	: Solid State (Over Voltage and Over Current) Built-in Secondary Protection
Physical Connector	: RJ45 (120Ω)

### ISDN PRI

Channels	: 23B+D and 30B+D
Personality	: Network (NT) and Terminal (TE)
Line Coding	: AMI/B8ZS for T1 and HDB3 for E1
Framing	: ESF for T1 and CEPT1 (with/without CRC) for E1
Switch Variant	: AT&T 4ESS, AT&T 5ESS, DMS-100, ETSI NET5, ITU-T Q.921, ITU-T Q.931, NTT INS64, US NI2(National ISDN 2), QSIG ECMA, France VN
Protection	: Solid State (Over Voltage and Over Current) Built-in Secondary Protection
Physical Connector	: RJ45
Supplementary Services	: QSIG ECMA

### E1 CAS

Bit Rate	: 2048 kbps +/- 50 ppm
Line Coding	: HDB3
Framing	: CEPT1 (with/without CRC) with CAS MF
Line Signaling	: ITU-T Q.400 – Q.490
Register Signaling	: MFC-R2
Alarms	: I.431, G.732, ETSI 300-233
Protection	: Solid State (Over Voltage and Over Current) built-in Secondary Protection
Physical Connector	: RJ48 (120Ω)

### T1 RBS

Bit Rate	: 1544 kbps +/- 50 ppm
Line Coding	: AMI and B8ZS
Line Signaling	: FXS Loop Start, FXO Loop Start, FXS Ground Start, FXO Ground Start, E&M (Immediate, Wink Start, Wink Start FGD)
Framing	: D4, ESF
Digit Dialing	: DTMF
Alarms	: ANSI T1.231
Performance	: ANSI T1.403, ANSI T1.231, AT&T TR54016
Physical Connector	: RJ48 (120Ω)
Protection	: Solid State (Over Voltage and Over Current) built-in Secondary Protection

### GSM

GSM Band (MHz)	: Quad-band: GSM850, EGSM900, DCS1800, PCS1900
Compliant	: ETSI GSM Phase2/2+
SIM Card	: One SIM per GSM Port
SIM Interface	: 1.8V, 3V
Transmission Power	: Class 4 (2W) at GSM850 MHz and EGSM900 MHz band Class 1 (1W) at DCS1800 MHz and PCS1900 MHz band
RF Sensitivity	: Better than -106dBm
Protocol	: At Command Interface
External Antenna	: One Antenna per 4 GSM Ports, 1.8/3.0 dBi, 50Ω SMA (Male) Connector, Omni Directional with Cable of 3 Meters Length

### VoIP

VoIP Protocols	: SIP v2, SDP, RTP, RFC 2833
Network Protocol	: IPv4, TCP, UDP, DHCP, STUN
SIP	: Maximum 32 SIP Accounts per System, Out Bound Proxy Support, Display Name, User Name, Password, URL, Proxy URL, Register URL, Register Interval
NAT/Firewall Support	: PPPoE
Voice Codecs	: G.711 (A-Law, μ-Law), G.723, G.729AB, GSM-FR, iLBC
Line Echo Cancellation	: G.168 with 64/128ms Tail Length
Call Progress Tones	: Dial Tone, Ring Back Tone, Busy Tone, Error Tone
Voice	: Dynamic Jitter Buffer (Adaptive), Comfort Noise Generation and Voice Activity Detection
Fax	: T.38 and Pass Through
Data Network	: Ethernet (RJ45) Port, Auto MDIX (10/100 BaseT)
Quality of Service	: Layer 3 DIFFServ and TOS
LED Indications	: 1-LED for System Status and 1-LED for Registrar Status

### E&M

Type	: Type IV and Type V
Signaling	: Pulse 10 PPS, Pulse 20 PPS and DTMF
Signaling Protocol	: Normal, Delay, Wink, CCS Signals
Speech Interface	: 2-Wire and 4-Wire

### AUXILIARY PORTS

Analog Input Port	: 0.7 Vrms, Isolated, Push-Type Connector
Analog Output Port	: 0.7 Vrms, Isolated, Push-Type Connector
Digital Input Port	: Loop Sensing-Open/Close, 5 mA, Push-Type Connector
Digital Output Port	: VDC Max = 60 V DC, IDC Max = 0.15 A, Push-Type Connector

### POWER SUPPLY

Input	: Option 1 (Mains): 90-265 VAC, 47-63 Hz Option 2 (DC): 48 VDC +/- 20%
Power Consumption (Typical)	: ETERNITY GE3S: 25W, ETERNITY GE6S: 30W ETERNITY GE12S: 50W, ETERNITY ME10S: 70W ETERNITY ME16S: 100W

### INSTALLATION

ETERNITY GE3S	: Wall Mount, Table Top
ETERNITY GE6S	: Wall Mount, Table Top
ETERNITY GE12S	: Wall Mount, Table Top, 19" Rack (Optional)
ETERNITY ME10S	: Wall Mount, Table Top, 19" Rack (Optional)
ETERNITY ME16S	: Wall Mount, Table Top

### ENVIRONMENT

Operating Temperature	: -10°C to +50°C (+14°F to +122°F)
Operating Humidity	: 5-95% RH, Non-Condensing
Storage Temperature	: -40°C to +85°C (-40°F to +185°F)
Storage Humidity	: 0-95% RH, Non-Condensing

\* Depends on GSM frequency band.

MECHANICAL	Unit Weight	Shipping Weight
<b>Dimensions (WxHxD)</b>		
ETERNITY GE3S - 18x14x25.4cm (7.04"x5.51"x10")	ETERNITY GE3S - 1.5kg (3.3 lbs)	ETERNITY GE3S - 4.5kg (9.9 lbs)
ETERNITY GE6S - 26x16x25.4cm (10.24"x6.29"x10")	ETERNITY GE6S - 3.5kg (7.7 lbs)	ETERNITY GE6S - 6.5kg (14.3 lbs)
ETERNITY GE12S - 41.2x16x25.4cm (16.22"x 6.29"x10")	ETERNITY GE12S - 6.5kg (14.3 lbs)	ETERNITY GE12S - 9.5kg (20.9 lbs)
ETERNITY ME10S - 48.2x33.0x39.9cm (19.0"x12.9"x15.55")	ETERNITY ME10S - 8.3kg (18.3 lbs)	ETERNITY ME10S - 12.3kg (27.1lbs)
ETERNITY ME16S - 52.3x33.0x39.9cm (20.5"x12.9"x15.55")	ETERNITY ME16S - 10.5kg (23.1lbs)	ETERNITY ME16S - 15.0kg (33.0 lbs)

## COMPLIANCES

<b>EMI/EMC</b>	Conducted Emission	: CISPR 22	<b>FCC</b>	Conducted Emission: FCC Part 15 Sub Part B
	Radiated Emission	: CISPR 22		Radiated Emission: FCC Part 15 Sub Part B
	Harmonic Current Emission	: IEC 61000-3-2	<b>FCC68</b>	US:MTXMF01BETERNITY
	Voltage Flicker	: IEC 61000-3-3	<b>TEC</b>	IR/IPX-01/03 APR2005
	Electro-static Discharge	: IEC 61000-4-2	<b>EC Directives</b>	R&TTE 1999/5/EC, LVD 73/23/EEC, EMC 89/336/EEC
	Radiated Susceptibility	: IEC 61000-4-3	<b>Safety</b>	IEC 60950:2001 First Edition
	Electrical Fast Transient	: IEC 61000-4-4		
	Surge	: IEC 61000-4-5		
	Conducted Immunity	: IEC 61000-4-6		
	Power Frequency Magnetic Field	: IEC 61000-4-8		
	Voltage Interruption and Dips	: IEC 61000-4-11		

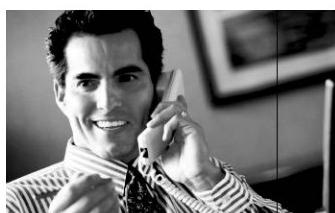
## ETERNITY FEATURES LIST

- Abbreviated Dialing (Global & Personal)
- Abbreviated Dialing (Free)
- Access Codes (Programmable)
- Account Codes
- Account Codes (Forced)
- Alarms (Time, Daily, Future Date & Time)
- Alarm-Snooze
- Alarm-Multiple
- Allowed and Denied Lists
- Alternate Number Dialing
- Analog Input Port
- Analog Output Port
- Auto Attendant
- Auto Call Back (Busy, No Reply)
- Auto Redial
- Automated Control Applications
- Background Music (DKP, SLT)
- Barge-In
- Boss Ring
- Call Accounting System (CAS) Interface
- Call Back On Mobile Port
- Call Budget
- Call Budget On Trunk
- Call Cost Calculation
- Call Duration Control
- Call Follow Me
- Call Forward (Busy, No Reply, Dual Ring Busy or No Reply, to external number)
- Call Forward (Remote)
- Call Park (General and Personal Orbit)
- Call Pick Up (Group and Selective)
- Call Progress Tones
- Call Splitting
- Call Taping
- Call Transfer (Screened, On Busy, While Ringing, Trunk to Trunk)
- Calling Line Identification and Presentation (CLIP)
- Calling Line Identity Restriction (CLIR)-Internal
- Calling Line Identification-Station (DKP and SLT)
- Calling Line Identification-Trunk (Analog, ISDN-BRI,T1/E1, GSM, VoIP)
- Central Ringer
- Class of Service (CoS)
- Closed User Group
- CLI based DISA
- CLI based Routing
- Closed User Group (With/ Without Exchange ID)
- Conference-3 Party
- Conference-15/21 Party
- Conference Dial-in
- Conference-Multiple
- Conflict Dialing
- Continued Dialing
- Conversation Recording
- Customer Emergency Services
- Date and Time Format
- Daylight Saving
- Department Call
- Digital Input Port
- Digital Output Port
- Direct Inward Dialing (DID)
- Direct Inward System Access (DISA)
- Direct Outward System Access (DOSA)
- Distinctive Rings
- Do Not Disturb (DND)
- Do Not Disturb (Remote)
- Dynamic Lock (Auto and Manual)
- E&M Connectivity
- Emergency Call Detection and Reporting
- Emergency Number Dialing
- External Call
- External Music Port
- Field Programmable (Onsite up-gradation)
- Flash Timer
- Flexible Clock Synchronization
- Flexible Numbers
- Forced Call Disconnection
- GPAX Applications
- GSM Signal Strength Indication
- Helpdesk
- Hold
- Hot Desking
- Hotline (Immediate and With Delay)
- Hot Outward Dialing (With/Without Number, With/Without Delay)
- Hotel-Motel Features
- Incoming Call Management
- Internal Call
- Internal Call Restriction
- Interrupt Request
- ISDN-BRI Connectivity
- ISDN-PRI Connectivity
- Last Caller Recall
- Last Number Redial
- Least Cost Routing (Number, Time, Combination of Time + Number, Carrier Pre-Selection and Service Provider to Service Provider)
- Live Call Screening
- Live Call Supervision
- Logical Partitioning
- Magneto Trunk Connectivity (ETERNITY ME)
- Maturity (Delay, CPD, Polarity Reversal, Connect)
- Meet Me Paging
- Message Wait
- Mobile Ports (GSM)
- Mobile Rx Strength on DKP Display
- Music on Hold
- Multi-Stage Dialing
- Name Display
- Name Programming (Station, Trunk)
- Operator (Single, Multiple)
- Override
- Paging (Internal and External)
- PLCC Applications
- PMS Interface
- Priority (Intercom and Trunk)
- Programmable Access Codes
- Programmable Call Progress Tones & Rings
- Programming the System (Using SLT, DKP, Ethernet Port, Serial Port, Jeeves)
- Public Address System Port
- Quick Dial
- QSIG
- Raid
- Real Time Clock
- Real Time Clock Synchronization
- Region Code
- Remote Alarm
- Remote Call Forward
- Remote Programming
- RS232C Port
- Security Dialing and Reporting
- Selective Trunk Access
- Station Groups
- Station Message Detail Recording (SMDR) (Incoming, Outgoing, Internal)
- System Activity Log and Display
- System Debug
- System Fault Log and Display
- System Administrator (SA) Mode
- System Security (Passwords)
- Time Tables
- Toll Control
- Trunk Access Groups
- Trunk Auto Answer
- Trunk Connectivity (BRI)
- Trunk Connectivity (E&M)
- Trunk Connectivity (E1)
- Trunk Connectivity (GSM)
- Trunk Connectivity (PRI)
- Trunk Connectivity (T1)
- Trunk Connectivity (VoIP)
- Trunk Landing Groups
- Trunk Parameters
- Trunk Reservation
- Upgrading the Software
- User Security (Password)
- Virtual Stations
- Voice Help
- Voice Mail Integration
- Voice Message Applications
- Voice Prompts for Tones
- Walk-in Class of Service
- Web based Programming

## EXPANSION CARDS

ETERNITY GE Cards	Description
SLT20	20 SLT Ports Card to Connect 20 Single Line Telephones
SLT8	8 SLT Ports Card to Connect 8 Single Line Telephones
DKP16	16 DKP Ports Card to Connect 16 Digital Key Phones
DKP8	8 DKP Ports Card to Connect 8 Digital Key Phones
DKP4+SLT16	4 DKP Ports and 16 SLT Ports Card to Connect 4 Digital Key Phones and 16 Single Line Telephones
TWT2+DKP2+SLT16	2 TWT Ports, 2 DKP Ports and 16 SLT Ports Card to Connect 2 Two Wire Trunk Lines, 2 Digital Key Phones and 16 Single Line Telephones
TWT2+DKP2+SLT8	2 TWT Ports, 2 DKP Ports and 8 SLT Ports Card to Connect 2 Two Wire Trunk Lines, 2 Digital Key Phones and 8 Single Line Telephones
TWT8+SLT8	8 TWT Ports and 8 SLT Ports Cards to Connect 8 Two Wire Trunk Lines and 8 Single Line Telephones
TWT4+SLT16	4 TWT Ports and 16 SLT Ports Card to Connect 4 Two Wire Trunk Lines and 16 Single Line Telephones
TWT16	16 TWT Ports Card to Connect 16 Two Wire Trunk Lines
TWT8	8 TWT Ports Card to Connect 8 Two Wire Trunk Lines
BRI4	4 BRI Ports Card to Connect 4 ISDN BRI Lines or ISDN Compatible Devices
T1E1PRI SINGLE	Single Port T1/E1/PRI Card with QSIG Support to Connect T1/E1/PRI Line or Compatible Device
GSM4	4 GSM Ports Card to Insert 4 GSM SIM Cards for GSM Network Connectivity
VoIP64	VoIP Card to Connect to IP Network for Making VoIP Calls. Support Up to 64 VoIP (SIP) Channels per Card
VoIP8	VoIP Card to Connect to IP Network for Making VoIP Calls. Support 8 VoIP (SIP) Channels per Card
E&M4	4 E&M Ports Card to Connect to 4 E&M Lines
VMS16	16 Port Voice Mail System with 512 Mail Boxes to give Voice Mail Box facility to PBX Users

ETERNITY ME Cards	Description
SLT32	32 SLT Ports Card to Connect 32 Single Line Telephones
SLT16	16 SLT Ports Card to Connect 16 Single Line Telephones
SLT8	8 SLT Ports Card to Connect 8 Single Line Telephones
DKP32	32 DKP Ports Card to Connect 32 Digital Key Phones
DKP16	16 DKP Ports Card to Connect 16 Digital Key Phones
DKP8	8 DKP Ports Card to Connect 8 Digital Key Phones
TWT8+SLT24	8 TWT Ports and 24 SLT Ports Card to Connect 8 Two Wire Trunk Lines and 24 Single Line Telephones
TWT16	16 TWT Ports Card to Connect 16 Two Wire Trunk Lines
TWT8	8 TWT Ports Card to Connect 8 Two Wire Trunk Lines
BRI8	8 BRI Ports Card to Connect 8 ISDN BRI Lines or ISDN Compatible Devices
BRI4	4 BRI Ports Card to Connect 4 ISDN BRI Lines or ISDN Compatible Devices
T1E1PRI DUAL	Dual Port T1/E1/PRI Card with QSIG Support to Connect 2 T1/E1/PRI Lines or Compatible Devices
T1E1PRI SINGLE	Single Port T1/E1/PRI Card with QSIG Support to Connect T1/E1/PRI Line or Compatible Device
GSM8	8 GSM Ports Card to insert 8 GSM SIM Cards for GSM Network Connectivity
GSM4	4 GSM Ports Card to insert 4 GSM SIM Cards for GSM Network Connectivity
VoIP8	VoIP Card to Connect to IP Network for Making VoIP calls. Support 8 VoIP (SIP) Channels per Card
E&M8	8 E&M Ports Card to connect to 8 E&M Lines
E&M4	4 E&M Ports Card to connect to 4 E&M Lines
MAGNETO8	8 Port Magneto Card to Connect 8 Magneto Phones
VMS16	16 Port Voice Mail System with 512 Mail Boxes to give Voice Mail Box facility to PBX Users



## ABOUT MATRIX

An ISO 9001 Company, Matrix is a leader in the VoIP, GSM, Key Phone System and PBX market. An innovative, technology driven and customer focused organization; the company is committed to keep pace with revolutions in the telecom industry. This has resulted in bringing forth cutting edge products like VoIP Phones, VoIP Gateways, VoIP ATA, GSM FCT, GSM Gateways, SMB PBX, Enterprise PBX, Hotel PBX, Voice Messaging Products, Communication Security Products and PLCC Switches. With over 1,500,000 line units installed and growing by over 1500 line units per day, the installed base of Matrix connects over 15,000,000 calls everyday. Thus, Matrix has gained the trust and admiration of users representing the entire spectrum of industries. Matrix has won many awards for its innovative products.



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